

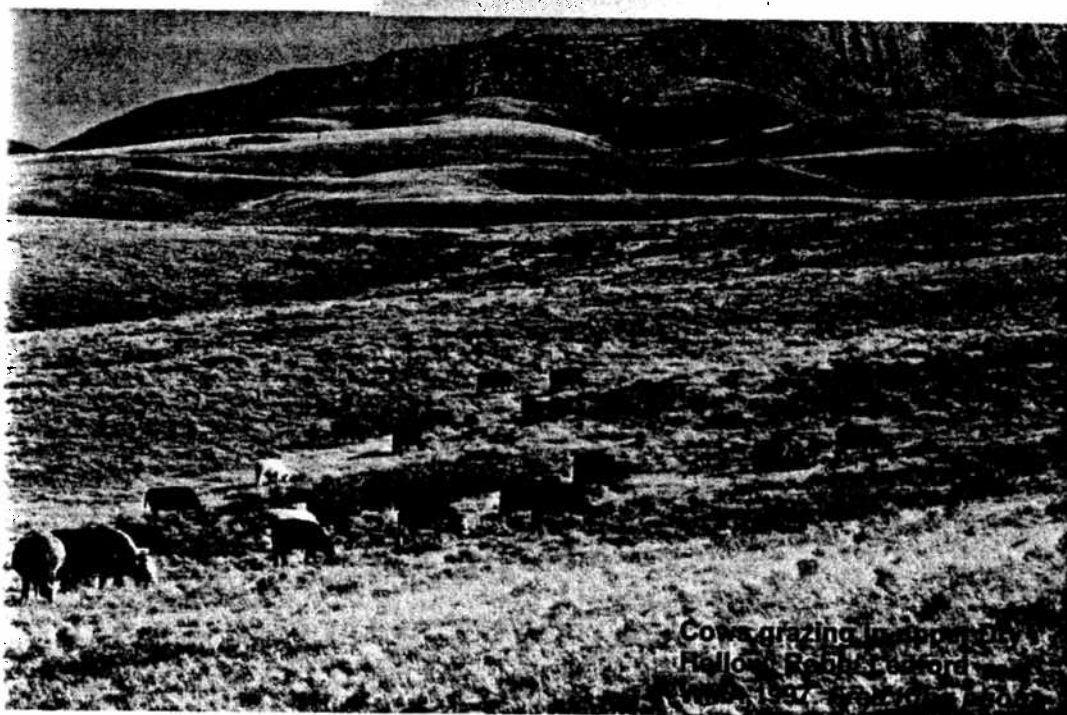
LIVESTOCK GRAZING PLAN

ROBB/LEDFORD COORDINATED GRAZING SYSTEM

REGION THREE



Elk, Robb/Ledford WMA, April 1990.
Joel Peterson Photo



Cows grazing in Robb/Ledford
WMA, April 1990.



**Montana Fish,
Wildlife & Parks**

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Introduction

This plan provides a strategy for livestock grazing as outlined in the Montana Fish, Wildlife & Parks (MFWP) Management Plan for the Robb/Ledford Wildlife Management Area (R/LWMA) and encouraged by the Rocky Mountain Elk Foundation (RMEF) (MFWP 1999 and Phillips 1991). As addressed in the Management Plan, the grazing strategy emphasizes rest-rotation grazing concepts developed by Horney (1970) and applies strategies used on similar MFWP projects to effectively manage wildlife and livestock on the same rangelands while expanding the influence of the WMA (Frisina and Morin 1991, Alt et al. 1992, MFWP no date, MFWP 1997).

In this case, the WMA area of influence is expanded by an "exchange of use" agreement with the Ledford Grazing Association (LGA). The agreement incorporates about 3,600 acres of Montana Department of Natural Resources (DNRC) lands leased by the LGA into the grazing system. The coordinated management of the MFWP R/LWMA with lands leased by the LGA is termed the Robb/Ledford Coordinated Grazing System (R/LCGS), which this document describes.

History

The R/LWMA was acquired in 1988 from the RMEF. The RMEF purchased the property from the LGA. With acquisition of the WMA, MFWP acquired the aforementioned DNRC leases. At the time MFWP purchased the R/LWMA the LGA retained the grazing rights until Nov 1, 1990 (MFWP 1999). In 1999 the LGA acquired a lease from the DNRC on the 3,600-acre McGuire property. The McGuire property was formerly in private ownership and was deeded to DNRC as part of a land exchange. MFWP considers the McGuire property important wildlife habitat (MFWP 1999). Therefore, MFWP entered into an "exchange of use" agreement with the LGA which allows the McGuire property to be included in the R/LCGS (MFWP 1999a).

Lands within the R/LCGS are suitable livestock range as evidenced by a long history of livestock grazing (MFWP 1999). DNRC lands are leased for livestock grazing to provide funds for the School Trust and when in private ownership lands deeded to MFWP were managed as range and hay land for livestock production (MFWP 1999). Purchase of the R/LWMA by MFWP changed the land management emphasis from livestock production to wildlife production, primarily elk.

Since 1989 an interim or temporary grazing system was implemented on the R/LWMA utilizing existing fences and water developments. In 2000 the interim system will be replaced by implementation of the R/LCGS described in this plan.

Range conditions within riparian areas on the WMA have generally improved since 1992 (Hansen 1999). The permanent grazing system proposed in this plan builds upon the success of the interim grazing plan.

Land Base

The R/LCGS land base is located in southwest Montana about 20 miles south of Alder and includes about 29,218 acres (Figure 1.) The land ownership involved in the R/LCGS consists of about 15,980 acres deeded to MFWP, 12,558 acres of DNRC lands leased by the LGA and MFWP, and 680 acres of scattered Bureau of Land Management (BLM) land tracts within the R/LWMA. BLM and Forest Service Allotments adjacent to the R/LCGS are coordinated with this grazing system but are managed under separate agreements (FS 1972 and BLM 1975). As a result of this plan the BLM Robb Creek Allotment (adjacent to the R/L CGS) will include about 640 acres of DNRC lands leased by MFWP and about 1,311 acres of MFWP deeded R/LWMA lands. R/LWMA and associated lands are described in the Robb/Ledford Wildlife Management Area Management Plan (MFWP 1999).

Grazing Strategy

The grazing system employs rest-rotation concepts described by Hormay (1970), requirements for grazing livestock on MFWP lands (Frisina 1991), and riparian grazing strategies recommended by Ehrhart and Hansen (1997) and Ehrhart and Hansen (1998).

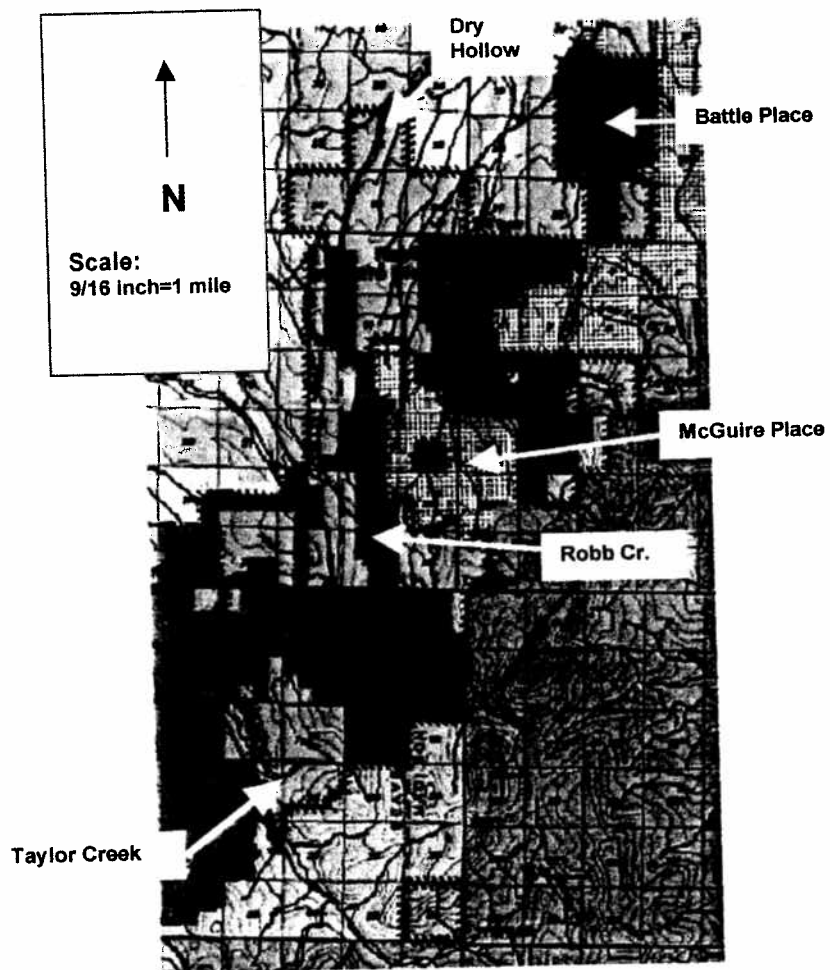


Figure 1. Approximate location of lands included within the Robb/Ledford Coordinated Grazing System noted by red shading.

Stocking Rate

The stocking rate of 1,168 Animal Units or maximum of 3,267 Animal Unit Months (AUM's) of cattle grazing will be permitted each year, the current stocking rate in place under the interim-grazing plan. The stocking rate takes into consideration the need of MFWP to comply with objectives in the R/LWMA Management Plan (MFWP 1999). It also considers the desire of MFWP to merge about 3,600 acres of DNRC land (McQuire Place) leased by the Ledford Grazing Association with management of the R/LWMA.

A comparison of recommended livestock stocking rates by the NRCS and Montana State University Agriculture Extension service indicate the stocking rate for the Robb/Ledford Cooperative Grazing System is conservative (NRCS 1981 and Lacey et al. 1994).

Table 1. Size in Acres for individual pasture units within the Robb/Ledford Coordinated Grazing System.

Pastures	Size in Acres	Pastures	Size in Acres	Pastures	Size in Acres
1L-Battle Place	2,590	2L-Lower Robb Cr.	2,996	3L-Dry Hollow	5,096
1H-Ledford Ridge	5,410	2H-Upper Robb Cr.	5,941	3H-Swamp/Rock Cr.	7,185
Total 1L/1H	8,000	Total 2L/2H	8,993	Total 3L/3H	12,281

Pasture size varies due to differences in terrain and water availability (Table 1 and Table 2). Depending on which pastures are actually grazed each year, total annual grazing intensity ranges from 5.2 to 6.5 acres per AUM and averages 6.0 acres per AUM over the three year grazing cycle (Table 2). This figure is conservative as acreages of rest pastures were not included in grazing intensity calculations. Annually, livestock density varies for individual pastures depending on the size of pasture and scheduled grazing treatment. Grazing intensity for pastures grazed during early or mid-summer varies from 4.0 to 8.7 acres per AUM, while pastures scheduled for grazing during late-summer or early fall are stocked at a density of 4.4 to 9.6 acres per AUM (Appendix A). Each individual pasture is rested from livestock grazing every third year (Table 2).

Beginning of Grazing Season

The starting date for the livestock grazing season is mid-June each year. Beginning the grazing season at this time of year is consistent with placing livestock on the range when plant growth has developed to a point where adequate plant production can be achieved in the presence of livestock grazing. Adequate plant production is defined as producing enough forage for the livestock to remain in the scheduled low elevation pasture for the allotted time while still meeting

WMA objectives. The starting date is consistent with similar grazing areas at similar elevations in southwest Montana (FS no date).

The starting date is not intended to be a predefined calendar date, but may vary by a few days each year depending on when rapid growth on bluebunch wheatgrass (*Agropyron spicatum*) occurs. The cattle may be placed in the first pasture at or after the time of rapid plant growth initiation, which occurs about mid-June in this area.

Grazing by livestock placed on the range prior to rapid growth can reduce the amount the amount of total forage produced in the pasture that year. The scheduled rest periods from livestock grazing are designed to maintain the vegetation regardless of when the grazing season is initiated. The initiation of the grazing season will be monitored relative to objectives listed in the management plan.

Ending of Grazing Season

Cattle grazing will cease on the WMA by October 15th each year. This ending date is based on a desire by MFWP to have livestock removed from the WMA prior to opening of the Montana General Big Game Hunting Season.

Pasture Layout

The layout of pastures is illustrated in Figure 2 (Appendix B). There are six pastures, three at the systems lower elevations (L) and three on the systems higher elevations (H). Pastures were designed to provide for cattle movement up drainages from lower to higher elevations as the growing season progresses and then move down drainages from higher to lower elevations as summer ends and fall begins.

Grazing Schedule

The grazing rotation schedule for each pasture in the system is described in Table 2. Refer to Figure 2 for location of individual pastures. Each year cattle will be placed in a low-elevation or early use pasture about mid-June. They will remain in this pasture until early July when they will be moved to the upper-elevation pasture scheduled for grazing. Livestock will remain in this upper-elevation pasture until seedripe on bluebunch wheatgrass (mid-August). Additionally, about July 15th 402 AU's will leave the R/LCGS and enter the Forest Service Allotment.

At seedripe (mid-August) cattle will enter a second high-elevation pasture scheduled for grazing. At this time 400 AU's will be removed from the R/LCGS and be placed on the BLM Robb Cr. Allotment.

On September 15th 400 AU's will re-enter the grazing system from the BLM Robb Cr. Allotment and on October 1st 402 AU's will re-enter the grazing system from the Forest Service Snowcrest C & H Allotment. During early October cattle will be allowed to drift into the low-elevation pasture scheduled for late-season grazing. On October 15th all livestock will be removed from the grazing system.

Table 2. Robb/Ledford Coordinated Grazing System livestock grazing rotation formula.

YEAR	PASTURES						
	Grazing Intensity in Acres/AUM	Battle Place(1L)	Lower Robb Cr(2L)	Dry Hollow (3L)	Ledford Ridge (1H)	Upper Robb Cr. (2H)	Swamp/ Rock Cr. (3H)
2000	6.2	B'	C	A'	B	C	A
2001	6.5	C	A'	B'	C	A	B
2002 ²	5.2	A'	B'	C	A	B	C

¹Grazing Treatments: A' = Livestock grazing from mid-June to early-July
A = Livestock grazing from early-July to mid-August (seed-ripe)
B = Livestock grazing from mid-August (seed-ripe) to October 1
B' = Livestock grazing from October 1 to October 15.
C = Rest from livestock grazing for the entire year.


²In the year 2003 and every fourth year the rotation is repeated by beginning again with the rotation at year 2000.

In summary, each year two pastures will be grazed during the plant growing season from mid-June to seed-ripe (mid-August). One pasture will be a low-elevation (L) pasture and the other a high-elevation (H) pasture. The low-elevation pasture will be grazed for about two weeks from mid-June to early-July. The high-elevation pasture will be grazed for about 1.5 months from early-July to mid-August. In mid-August cattle will enter a second high elevation pasture and this unit will be available for grazing through early October. From early October to mid-October, cattle will use a second low elevation pasture. The third high- and low-elevation pastures will be rested from livestock grazing for the entire year (Appendix C).

When a pasture is grazed during the plant growing season in Year 1, it is deferred from grazing until after seed-ripe in Year 2 and rested for the entire year in Year 3. Each year cattle begin and spend the first half of the grazing season in pastures that were rested the previous year. Cattle spend the after seed-ripe portion of the grazing season in pastures that were grazed during the

Robb/Ledford Coordinated Grazing System Pastures

LEGEND

 Pasture Boundary

1L, 1H Pasture Name
(L= lower elevation, H= higher elevation)



5/8 inch = 1 mile

September 16, 1999

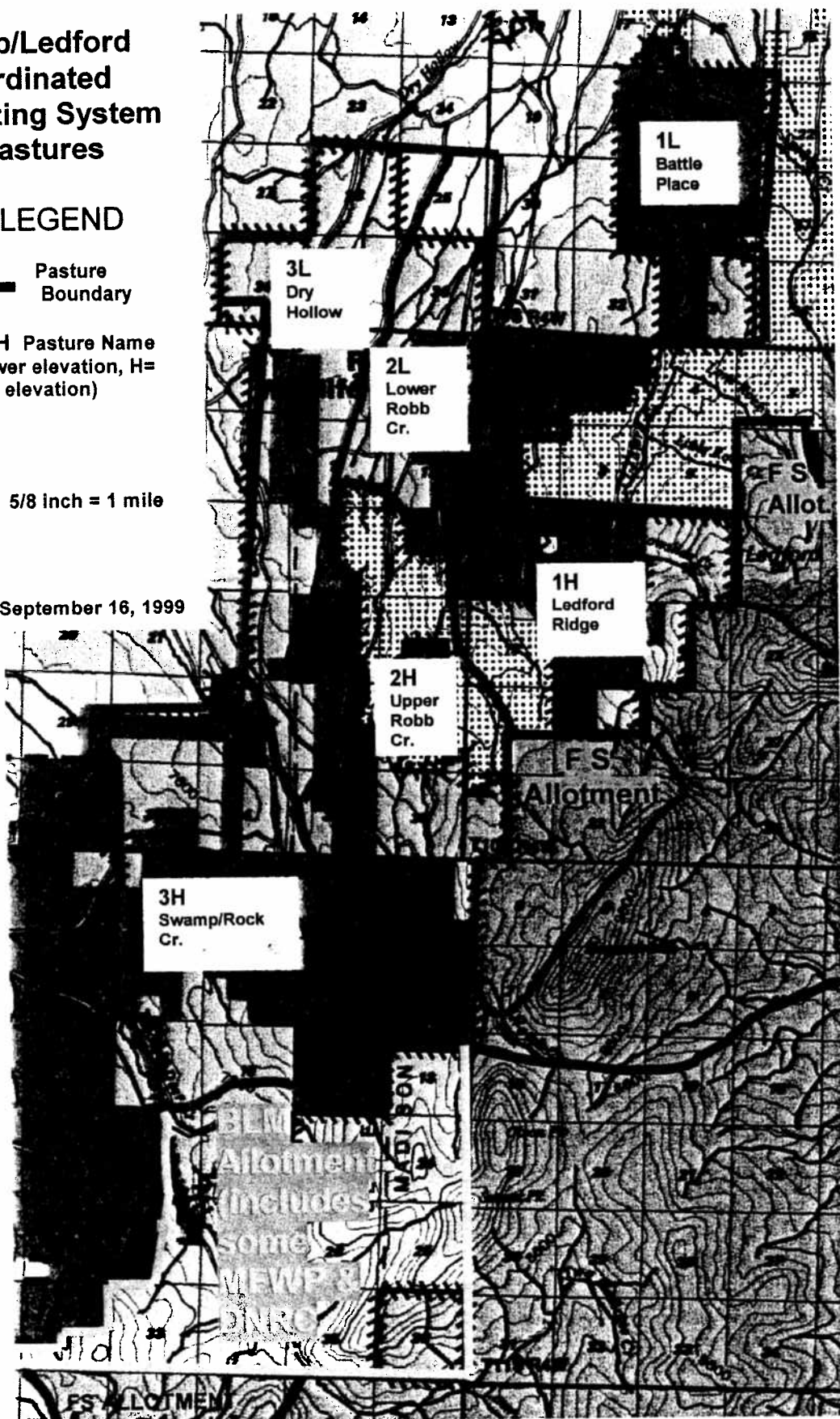


Figure 2. Pasture layout of Robb/Ledford Coordinated Grazing System

growing season the previous year. Pastures grazed by cattle after seed-ripe are rested the next year. Under this approach plants are only grazed while they are actively growing once every third year, but each pasture is available for livestock grazing two out of every three years.

Tall Larkspur

Tall larkspur (*Delphinium occidentale*) occurs in all three high-elevation (H) pastures (Figure 2). Tall larkspur is fatally poisonous to cattle (USDA 1937, Leininger et al. 1977, Whitson 1987). When conditions are suitable for its growth, tall larkspur can occur within the grazing system in significant amounts. When necessary, larkspur areas will be fenced using electric fencing to prevent cattle poisoning. Larkspur poisoning is usually a potential problem until mid- or late-July. Once the plants are beyond their poisonous growth stage, the electric fencing will be taken down to allow cattle to use the entire pasture. This will require construction of about 13 miles of electric fence scattered across the three high elevation (H) pastures. However, only a portion of the electric fence areas will have to be maintained at any one time as cattle only use one pasture at a time. Also, the larkspur poisoning threat is normally over about two weeks after cattle enter the appropriate high-elevation pasture.

Holding livestock in a low-elevation (L) pasture until the larkspur poisoning threat is over was also considered. This alternative was rejected as it would require holding cattle in the beginning low-elevation pasture for at least two weeks longer than it is normally planned for grazing use. At current stocking levels this would require very intense grazing in the beginning pasture (~ 2.2 acres/Aum at times) and is inconsistent with good land management and the WMA objectives. To graze cattle in the beginning use pasture until the larkspur threat passes would require either starting the grazing season about two weeks later than planned (July 1) or reducing the number of cattle using the first pasture by about half.

Range Improvements

To implement this planned grazing system it will be necessary to construct about 26 miles of new barbed wire fence, 14 miles of one strand electric fence, and develop a more reliable stock-water source (Peterson 1999). Estimated costs as presented by Peterson (1999) are itemized in Table 3 and may total \$314,000.

Table 3. Range improvement costs associated with implementation of the Robb/Ledford Coordinated grazing system. Data as presented by Peterson (1999).

IMPROVEMENT	ESTIMATED COST	JUSTIFICATION
26 miles of barbed wire fence	\$166,400 (@\$6,400 per mile)	Essential new internal pasture fence. Required to accomplish the rotation of livestock to protect soils and vegetation.
14 miles of one strand electric fence.	\$28,000 (@\$2,000 per mile)	Essential to prevent larkspur poisoning of livestock. Without this fence the proposed grazing rotation and livestock numbers proposed by this plan cannot be accomplished.
Develop Kelly Spring into a reliable water source for livestock on using WMA	The total obligation is currently unknown, but could potentially be in the vicinity of \$120,000	A more reliable water source is essential in order to maintain livestock numbers and accomplish the grazing rotation proposed by this plan.
TOTALS FOR IMPROVEMENTS	\$314,000	These improvements are essential for MFWP to maintain the number of livestock proposed in this plan and implement a grazing system that addresses the WMA objectives.

Objectives

The R/LWMA Management Plan lists 9 objectives and associated issues for the WMA. This section addresses how the R/LCGS helps meet these objectives.

OBJECTIVE 1. Manage the vegetation to allow succession towards climax vegetative communities and the potential natural vegetation as determined by soil types and climate. Specifically, uplands would be managed as Idaho fescue and bluebunch wheatgrass communities. Riparian sites would be managed for the maintenance and improvement of willow communities and bank stability.

ISSUE 1: Vegetation needs to be allowed adequate rest periods for health and vigor.

ISSUE 2: Noxious weeds occur on the property.

The R/LCGS promotes the maintenance of healthy native vegetation by encouraging long rest periods from livestock grazing during plant growth periods. Each year two pastures are deferred from livestock grazing until after seed-ripe (B or B' Table 2). Seed-ripe focuses on bluebunch

wheatgrass which is one of the slowest maturing plants in the grazing system. By waiting until bluebunch wheatgrass has produced seed, all other plants in the pasture will have had an opportunity to complete their biological processes and produce seed that year. According to the grazing rotation in Table 2, the next year after receiving the after seed-ripe grazing treatment the pasture is rested from livestock grazing. This gives the plant a second year of rest from use during the growing season and provides one year for any established seedlings to develop a root system prior to grazing by livestock. With this approach after plants are grazed during the growing season (when the above ground portion of the plant is biologically active) those same plants are given a rest the next year from grazing while they are growing followed by a total rest the third year from livestock grazing.

As recommended by Ehrhart and Hansen (1997) and Ehrhart and Hansen (1998) riparian grazing is addressed within the design of the R/LCGS. Availability of water at sites away from riparian areas, salting at locations away from riparian areas, herding, pasture layout, timing of use, rest periods, and maintaining an appropriate livestock density, are all important tools to prevent unacceptable use by livestock of riparian areas (Ehrhart and Hansen 1997 and Ehrhart and Hansen 1998). All of the aforementioned have been incorporated into the design of the R/LCGS.

The R/LCGS encourages the maintenance and improvement of native plant communities. Establishment of noxious weeds is encouraged by soil disturbance. Since the grazing system encourages the establishment of native vegetation on all sites it is an important consideration in the effort to control the spread of noxious weeds.

Although tall larkspur is a native plant it is, at times, very poisonous to domestic livestock. This conflict is resolved in the design of the R/LCGS by fencing out larkspur from livestock use during time periods when it is poisonous.

OBJECTIVE 2. Expand the benefits of managing the deeded WMA land as wildlife habitat to adjoining DNRC land.

ISSUE 1. The Ledford Creek Grazing Association has the grazing rights to the 3,620-acre of DNRC (McGuire) found within the boundaries of the WMA with a rated (livestock) carrying capacity of 1059 AUMs. The McGuire property is important elk winter range and wildlife habitat.

ISSUE 2. FWP presently leases over 10,000 acres of DNRC lands associated with the WMA. This land is important wildlife habitat and an integral part of the WMA. The cost of leasing DNRC land will continue to increase and could eventually be cost prohibitive.

Through an exchange of use agreement with the LGA and implementation of the R/LCGS management of the McGuire property is incorporated into management of the R/LWMA. They are

managed as a single unit. Fees generated by allowing the LGA to graze on the WMA and DNRC lands leased by MFWP helps cover the costs of the MFWP DNRC leases. Since the DNRC lands are leased to MFWP for livestock grazing as a means to raise funds for the School Trust this arrangement allows MFWP to maintain management of these lands.

OBJECTIVE 3. Showcase the WMA as a demonstration area where both wildlife and livestock can co-exist in a rest-rotation grazing system that will allow for the maintenance of a healthy range ecosystem.

ISSUE 1: Wildlife and livestock both require the perpetual maintenance of a healthy rangeland ecosystem for their long-term existence. Both compete for similar resources. These resources exist on both private and public land throughout the state (65% of which is private).

Refer to discussion under **OBJECTIVE 1**. As a result of the R/L CGS design, use by livestock is limited to 2 of 6 pastures until late summer. Two of 6 pastures are rested from livestock use for the entire year. Additionally, an average stocking rate of 6.0 acres per AUM, over a 3 year grazing cycle, provides for maintenance of residual vegetation for forage and habitat in grazed pastures (Figure 3).



Figure 3. Within Battle Place Pasture of interim plan. Pasture 1L in this plan (Figure 2). Photo taken on 9/29/99 after livestock grazing in the pasture was completed. During 1999 this pasture was grazed from 6/13 to July 1. *Joel Peterson photo.*

OBJECTIVE 4. Provide an adequate amount of vegetation across the entire WMA annually to supply the winter forage requirements of elk (as designated in the Elk Management Plan) and to reduce elk depredation on neighboring private land.

ISSUE 1: Providing adequate amounts of highly palatable residual forage on the WMA to meet needs of wintering elk.

ISSUE 2: Provide adequate winter elk forage distributed throughout the WMA.

ISSUE 3: Documenting the success of leaving an adequate distribution of residual vegetation for wintering elk throughout the WMA.

Elk and cattle can both be managed successfully on the same range (Anderson and Scherzinger 1975, Frisina and Morin 1991, Frisina 1991, Alt et al. 1992, Yeo et al. 1993, and Werner and Urness 1996).

In Montana's Elkhorn Mountains elk selected as spring feeding sites, areas that were grazed by cattle the previous growing season (Grover and Thompson 1986). Similarly, cattle grazing treatments applied the previous summer may help establish high quality early spring foraging for elk the following spring (Frisina 1992). Grazing by domestic livestock may improve accessibility, palatability, or nutritive quality of forage plants preferred by wild herbivores (Jourdonnais and Bedunah 1990, Clark et al. 2000).

Two pastures are rested from livestock grazing each year. All of the vegetation produced in these pastures is available for wintering elk. A conservative stocking rate of 6.0 acres per AUM (average for one cycle of the system, Table 2) is employed to provide adequate residual vegetation left in all grazed pastures. There is especially abundant residual vegetation left along ridge-tops and steeper side slopes that are important winter range sites for elk, but of secondary range value to cattle (Figure 4).

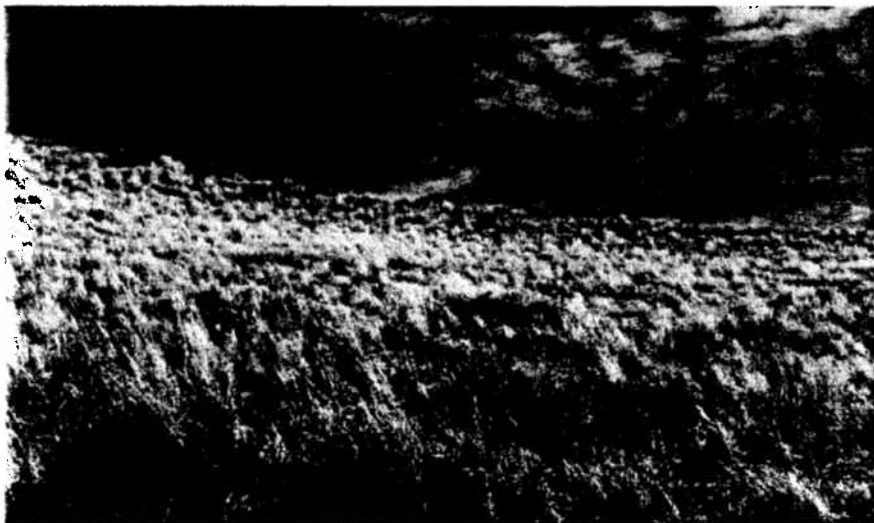


Figure 4. Within the Robb Cr. Lakes Pasture of the interim plan. Pasture 3H of this plan (Figure 2). Photo taken on 9/29/99 after cattle grazing was completed. During 1999 this pasture was grazed from mid-August to mid-September. *Joel Peterson photo.*

The combination of rested pastures and conservative stocking rate provides for an adequate distribution of winter forage for elk. Observations of winter elk use and numbers of elk observed indicate there is currently more residual vegetation left as winter forage than elk are utilizing.

A visual inspection of the pastures scheduled for rest at the end of the grazing season can serve as partial documentation that adequate residual vegetation is left for elk.

OBJECTIVE 5. Provide for the cover, forage and water quality needs for other fish and wildlife species using the WMA. For example, residual cover is important for ground nesting birds and small mammals. Shrubby vegetation such as sagebrush is important for cover, nesting and forage for a number of wildlife species. Riparian vegetation is critical to maintain fisheries and wildlife values.

ISSUE 1. Loss of residual vegetation due to livestock grazing.

ISSUE 2. Maintain adequate stream function and riparian habitat necessary to promote an abundance of wild trout representing a spectrum of age classes and where appropriate, ensuring westslope cutthroat conservation objectives are met.

The grazing system provides for two large pastures to be rested from livestock grazing each year. Additionally, two pastures are rested from livestock grazing until late summer. All of the vegetation produced in these deferred and rested pastures is available as habitat for small birds and small mammals for most of the summer months. Those pastures scheduled for grazing are stocked at a conservative stocking rate (average 6.0 acres per AUM), which leaves residual vegetation for wildlife forage and habitat. When managing grazing in areas used by upland sandpipers (*Bartramia longicauda*), and upland nesting bird, the habitat complex should include fields undisturbed during the nesting season (Bowen and Kruse 1993). Maintaining fenced pastures which control grazing intensity, timing, and location may create a mosaic of habitats and thus bird communities of differing structure and composition (DeGraaf et al. 1991). In the R/LCGS the grazing season does not begin until mid-June. Five of the grazing systems six pastures are left as undisturbed nesting habitat for upland birds until early-July. The nesting period for Montana sage grouse is from mid-April to late-June (Wallestad 1975).

Adequate small mammal populations to serve as a prey base for raptors can be maintained within a rest-rotation grazing system (Frisina and Douglass 1993)

Riparian areas can be successfully managed with the presence of livestock grazing (Ehrhart and Hansen 1997, Erhart and Hansen 1998). As described under **OBJECTIVE 1** the need to maintain proper functioning riparian habitats was given careful consideration in the design of the grazing system. Considering the importance of westslope cutthroat trout, having an area that demonstrates their sustainability in a managed system could be important for their conservation.

OBJECTIVE 6. Enhance wildlife benefits on adjacent lands where feasible, through cooperative agreements with State and Federal landowner(s).

ISSUE: Habitat for a variety of wildlife species including elk winter range is found on adjacent public land.

The R/LCGS includes about 3600-acres of DNRC lands (McGuire Place) leased by the LGA. The McGuire Place is important elk winter range and wildlife habitat (MFWP 1999). The R/LCGS also includes about 10,000 acres of DNRC lands leased by MFWP that are important elk winter range and wildlife habitat.

The R/LCGS is coordinated with the scheduled movements of livestock on the FS Snowcrest C & H Allotment and BLM Taylor Creek Allotment (FS 1972 and BLM 1975). These Federal grazing allotments include important wildlife habitat.

OBJECTIVE 7. Manage public access to provide a diversity of wildlife and fishery related recreational opportunities.

ISSUE: Distribute public use with minimal impact on land, fisheries, and wildlife.

Cattle are only in one pasture at a time, leaving the majority of grazing system land base available for those who wish to recreate in areas without livestock present. Each year, four of six large pastures are left un-grazed for most of the summer, two of which are rested the entire year. These are available for people to use for recreation in an un-grazed setting. Additionally a conservative stocking rate is maintained in pastures scheduled for grazing.

Each year, cattle are removed from the grazing system prior to opening of the Montana General Big Game Hunting Season.

OBJECTIVE 8. Provide for aesthetics along riparian zones and uplands.

ISSUE: How to minimize human related impacts on the WMA.

Two thirds of the pastures in the grazing system are rested for most of the summer months. Those pastures scheduled for grazing are stocked at a conservative stocking rate.

Unneeded fences will be removed as the grazing system is developed.

New fences will be located to minimize livestock concentrations and encourage desired livestock distribution.

Salt blocks and water tank locations will be located away from open public roads and riparian areas.

OBJECTIVE 9. Increase public awareness and appreciation for the diversity of wildlife, fisheries and plant communities present on the Robb/Ledford WMA.

ISSUE: How to educate the public on the purpose and use of the WMA.


The R/LCGS can serve as an example of effective land management for the benefit of a variety of wildlife. An example of practical management applicable to situations in Montana and other western States.

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Joel Peterson: Compliance with objectives.
Grazing system design.
Costs and photographs.

Fred King: Grazing system design.
Costs and Photographs.

Steve Knapp: Compliance with objectives.
Program oversight.

Appendix A

Grazing intensity analysis in acres/AUM for each pasture when the various grazing treatments are applied.

ROBB/LEDFORD COORDINATED GRAZING SYSTEM

GRAZING INTENSITY ANALYSIS

For pastures receiving the early- or mid-summer (growing season/most intensive) grazing treatments.

¹AUs, AUMs, and acres:AUM represent the years when the A' grazing treatment (mid-June to early-July) is applied to each of the L series (low elevation) pastures.

Pasture 3L Dry Hollow 8.7 Acres:AUM
1168 AUs
584 AUMs
5,096 Acres

Pasture 2L Lower Robb Cr. 5.1 Acres:AUM
1168 AUs
584 AUMs
2,996 Acres

Pasture 1L Battle Place 4.4 Acres:AUM
1168 AUs
584 AUMs
2,590 Acres

¹AUs, AUMs, and acres:per AUM represent the years when the A grazing treatment (early-July to mid-August) is applied to the H series (high elevation) pastures.

Pasture 3H Swamp/Rock Cr. 5.3 Acres:AUM
766-1168 AUs
1350 AUMs
7,185 Acres

Pasture 2H Upper Robb Cr. 4.4 Acres:AUM
766-1168 AUs
1350 AUMs
5,941 Acres

Pasture 1H Ledford Ridge 4.0 Acres:AUM
766-1168 AUs
1350 AUMs
5,410 Acres

¹AUs, AUMs, and acres:AUM are approximations and do not include the rest pasture acreage.

ROBB/LEDFORD COORDINATED GRAZING SYSTEM GRAZING INTENSITY ANALYSIS

For pastures receiving the late-summer or early-fall grazing treatments.

¹AUs, AUMs, and acres:AUM represent the years when the B' grazing treatment (early-October- October 15) is applied to each of the L series (low elevation) pastures.

Pasture 3L
Dry Hollow
8.7 Acres:AUM

1168 AUs

584 AUMs

5,096 Acres

Pasture 2L
Lower Robb Cr.
5.1 Acres:AUM

1168 AUs

584 AUMs

2,996 Acres

Pasture 1L
Battle Place
4.4 Acres:AUM

1168 AUs

584 AUMs

2,590 Acres

¹AUs, AUMs, and acres:per AUM represent the years when the B grazing treatment (mid-August to early October) is applied to the H (high elevation) series pastures.

Pasture 3H
Swamp/Rock Cr.
9.6 Acres:AUM

366-1168 AUs

749 AUMs

7,185 Acres

Pasture 2H
Upper Robb Cr.
7.9 Acres:AUM

366-1168 AUs

749 AUMs

5,941 Acres

Pasture 1H
Ledford Ridge
7.2 Acres:AUM

366-1168 AUs

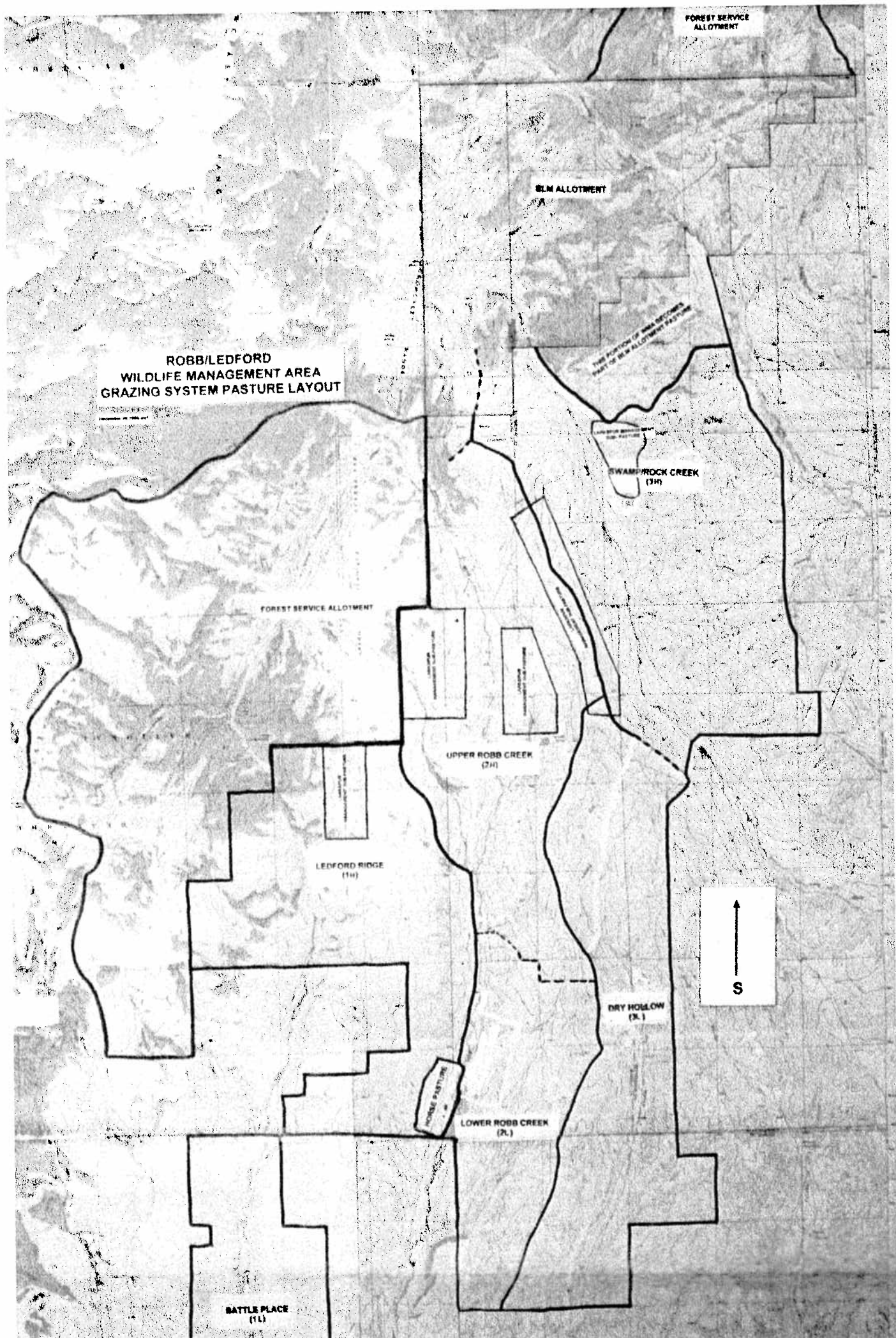
749 AUMs

5,410 Acres

¹AUs, AUMs, and acres:AUM are approximations and do not include the rest pasture acreage or A' or A grazed pastures.

Appendix B

Topographic map illustrating the location of pastures, larkspur management pastures, and horse pasture.



Appendix C

Schematics describing how livestock are rotated through the pastures and timing of grazing by year.

Robb Cr WMA Grazing Rotation for the Year 2000 (year 1 of the rotation)

1168 AUs enter pasture
3L to begin the grazing
season



Pasture 3L Dry Hollow

All 1168 AUs graze
from mid-June to
early-July.

(584 AUMS total)

Pasture 2L Lower Robb Cr.

Rested from livestock
grazing for the year.

Oct. 15, livestock return
to private lands for the
winter



Pasture 1L Battle Place

The first week in
October cattle begin
drifting into this
pasture from pasture
1H. All 1168 AUs wind
up here by Oct. 15
(584 AUMS total)



Pasture 3H Swamp/Rock Cr.

All 1168 AUs graze
from early-July to
July 15.

July 15, 402 AUs go
to Forest Allotment.

July 15 to mid-
August 766 AUs
remain in pasture
(1350 AUMS total)

Pasture 2H Upper Robb Cr.

Rested from livestock
grazing for the year.



Pasture 1H Ledford Ridge

366 AUs from mid-
August to Sept. 15.

+

Sept. 15, 400AUs
enter this pasture from
the BLM Allotment.

+

Oct. 1, 402 AUs enter
this pasture from the
FS Allotment.
(749 AUMS total)

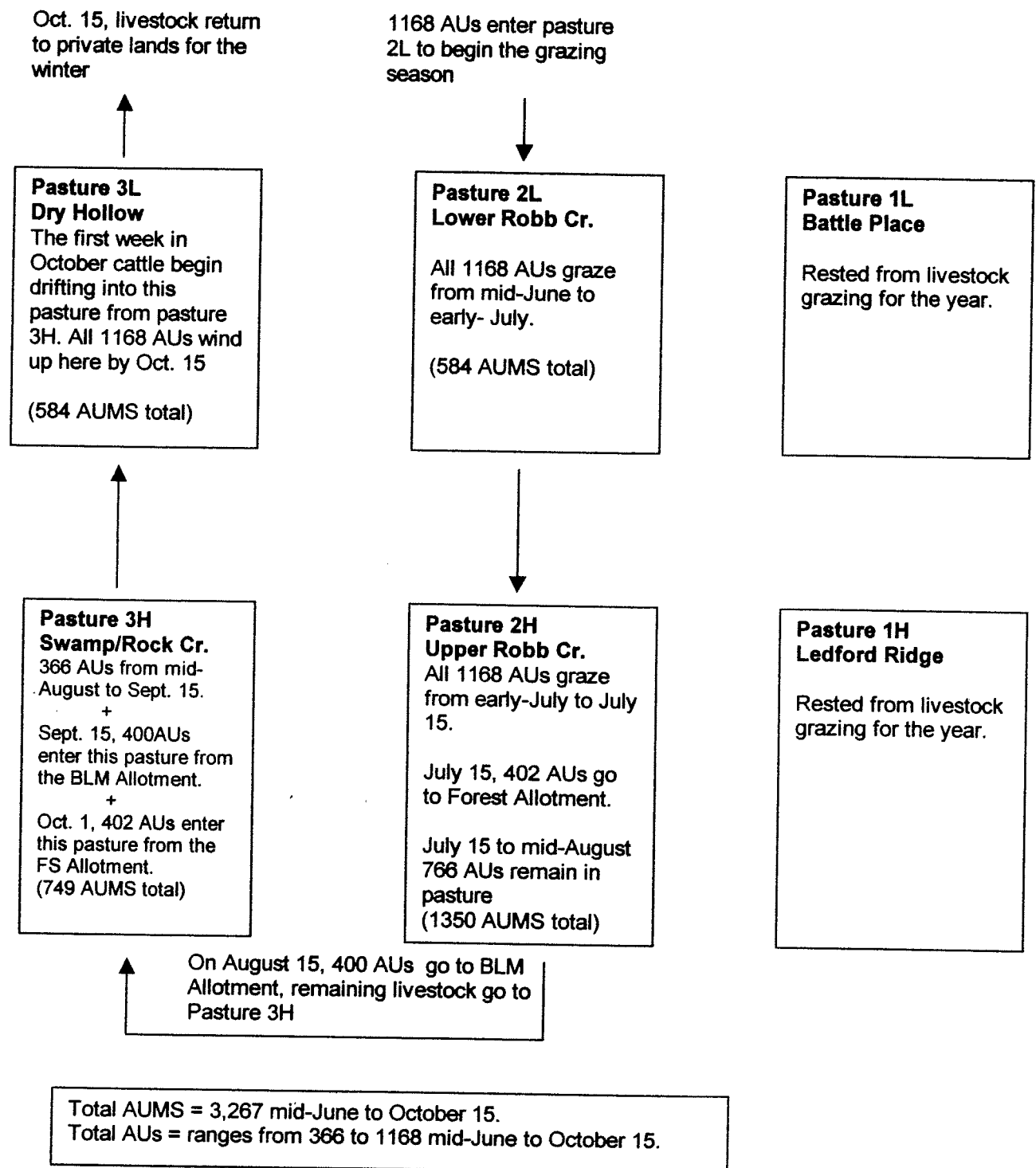
On August 15, 400 AUs go to BLM Allotment, remaining livestock
go to Pasture 1H



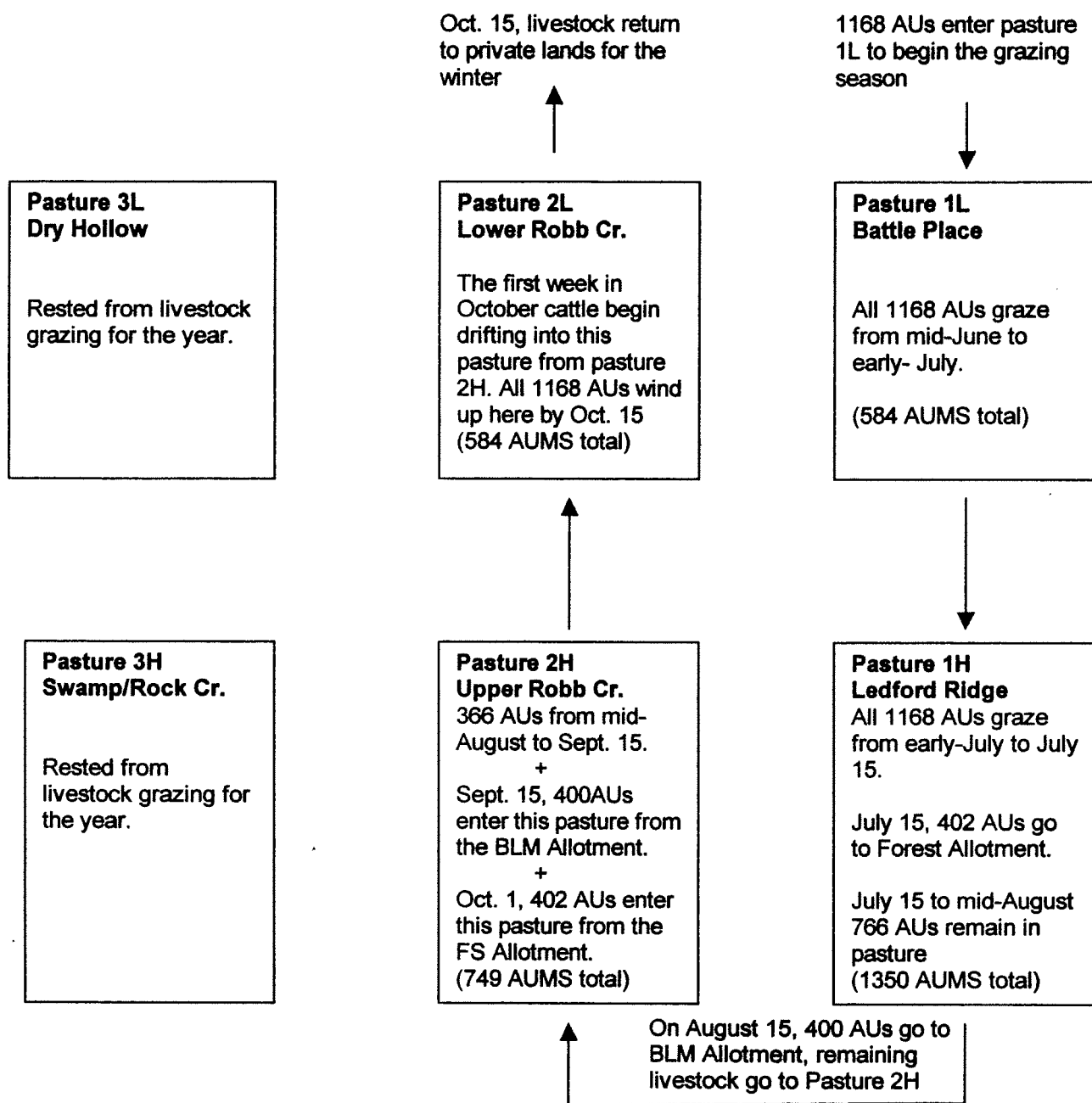
Total AUMS = 3,267 mid-June to October 15

Total AUs = ranges from 366 to 1168 mid-June to October 15

Robb Cr WMA Grazing Rotation for the Year 2001 (year 2 of the rotation)



Robb Cr WMA Grazing Rotation for the Year 2002 (year 3 of the rotation)



Total AUMS = 3,267 mid-June to October 15.

Total AUs = ranges from 366 to 1168 mid-June to October 15.